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Nebraska 4-H Poultry Production : Extension Circular 14-01-2

Elvin Schultz

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NEBRASKA

4-H POULTRY PRODUCTION

For
"Chick Rearing"
and
"Market Poultry"
Projects



EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
AND U.S. DEPARTMENT OF AGRICULTURE
COOPERATING
W.V. LAMBERT, DIRECTOR

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The purpose of this manual is to help you with your 4-H Chick Rearing and Market Poultry Projects. This manual discusses problems you will encounter.

Club members that plan to raise chicks for meat should carry the 4-H Market Poultry Project.

If you are carrying a chick rearing project, you should plan to have enough pullets for a 4-H laying flock by the end of the year.

Poultry Production

by
Elvin Schultz and Don K. Wiles

Selecting Chicks

WHAT KIND SHOULD I BUY? The type or breed depends upon whether you want eggs, meat, or both. Buy well-bred, disease-free chicks from a reputable hatchery. Ask your hatchery serviceman or county agent about recommended breeds and hybrids.

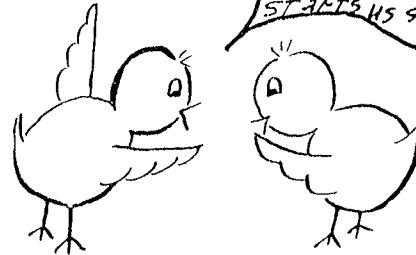
HOW MANY SHALL I BUY? This will depend largely upon the housing and equipment you have available. It never pays to crowd the birds.

Consider, also, the number of layers you want in the fall. In order to have 100 good pullets to house, start at least 250 straight run or 130 sexed pullet chicks. This allows for mortality, mistakes made in sexing, and culling the slow maturing pullets.

WHEN SHALL I START MY CHICKS? It will take birds between five and six months to grow into layers. Since egg prices are usually highest in September, October and November, it pays to start chicks so they will be ready by that time. Pullets hatched after May 1 seldom lay until much of the high egg price season is past. The same is true with market birds; early-hatched birds will usually bring more than those hatched after May 1. Also, late-hatched chicks are under a handicap when exhibited at fairs beside early-hatched birds. This is because they are not fully developed.

MAY						
S	M	T	W	T	F	S
1	2	3	4	5	6	
8	9	10	11	12	13	
15	16	17	18	19	20	
22	23	24	25	26	27	
29	30	31				

How can our boss expect to get high priced eggs from us when he starts us so late?



SHALL I BUY STARTED OR DAY-OLD CHICKS? You may buy started chicks from two to four weeks old, or you may buy day-old chicks. The price of started chicks is usually high. Before purchasing started chicks, the cost of brooding and feeding should be figured and the losses estimated. At times, you may find it more practical, convenient and profitable to buy started chicks. However, you may have more trouble with diseases when purchasing started chicks.

WHY SHOULD I BE CONCERNED ABOUT THE NATIONAL POULTRY IMPROVEMENT PLAN (N. P. I. P.)? The plan is based on careful selection of the breeding stock. Any bird that can pass pullorum disease through her eggs to the baby chicks is culled. Participation by the hatchery is voluntary. Participating hatcheries are required to meet certain standards and are subject to official inspection at any time. Approved hatcheries cannot use hatching flocks where pullorum disease reactors are present. Your county agent can give you more information about the N. P. I. P.

Housing Chicks

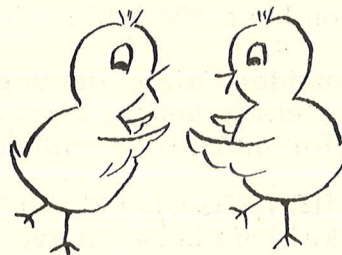
WHAT KIND OF HOUSING SHOULD I PROVIDE FOR MY CHICKS? The ideal house is one built especially to brood chicks. For small broods, a portable hog house or a corner of some building is satisfactory. Regardless of the building you use, it should provide:

1. Adequate floor space. At least $1/2$ square foot per chick will be needed if birds are placed on range by the age of six weeks. At least $3/4$ square foot (preferably 1 square foot) per chick is needed if they are started so early that range will not be available by six weeks.

2. Ventilation without drafts. Opening windows from the top on one side of house, preferably the south side, will usually provide adequate ventilation without drafts. Cross ventilation should be possible for hot weather. For baby chicks, be sure you do not lower the room temperature too much.

3. Protection. Your chicks need protection from sudden changes in temperature, rats and other animals, and birds. The roof should not leak; the house should not have cracks in the walls; the doors should close firmly; and the windows should be covered with $3/4$ -inch wire netting. The building must be ratproof. Insulated walls and ceiling save brooding fuel and protect against sudden weather changes.

We have plenty of PEP because the boss wasn't afraid to open the windows to let in Fresh Air!!



4. Light. Provide enough light for chicks to find feed and water. Good lighting will also help to prevent crowding.

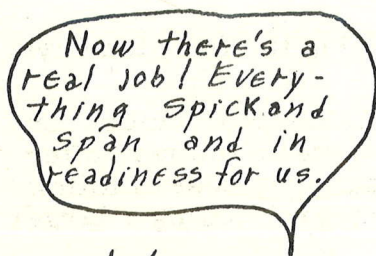
Preparing for Chicks

SHOULD I CLEAN MY BROODER HOUSE? Clean the brooder house thoroughly. Scrub the floor, lower part of walls and all equipment with hot lye water (1 ounce per gallon of water). Handle this solution with care. When dry, spray walls and floors with a good disinfectant. When preparing the solution, be sure to follow the manufacturer's instructions. If mites have been a problem, spray or paint the floor, lower walls and perches with DDT or lindane. All these preparations should be completed several days before the chicks arrive so the house will be dry.

SHOULD MY CHICKS BE ON CLEAN GROUND? If possible, provide clean ground around the brooder house. Move portable brooder houses to clean ground before the chicks arrive. When the brooder house can not be moved, make plans to confine the chicks to the house until they can be transferred to a range shelter on clean ground.

WHAT KIND OF LITTER SHOULD I USE? Cover the floor at least 2 inches deep with a litter that will absorb moisture and not be too dusty. Coarsely crushed corn cobs, shavings, chopped straw or commercial litter may be used.

SHOULD I USE A CHICK GUARD? Place a chick guard around the brooder or heat lamps to keep chicks from piling in corners. Use solid guard or draft shields, 12 inches or more in height, made of material such as corrugated cardboard. Have guards long enough to encircle the brooder with about 2 feet from edge of brooder to the guard. You will need another 10 to 12 feet of length for enlarging the circle when necessary.



HOW SHOULD I ARRANGE MY FEEDERS AND WATERERS? Arrange the feeders around the brooder like spokes in a wheel. This makes it easier for the chicks to find their way back to the heat. If you use an electric brooder, place about half the length of the feed trough under the hover. Feeders do not have to be placed under the hover of gas or oil brooders. Place waterers between the feeders.

WHEN SHOULD I START MY BROODER? Start the brooder at least 24 hours before the chicks arrive. This will allow enough time for the house to get warm.

Brooding Chicks

WHAT KIND AND SIZE OF BROODER SHOULD I HAVE? Many kinds of brooders will do a satisfactory job. The important thing is to have a temperature of 95° Fahrenheit under the brooder. Infrared heat lamps may be used for broods of less than 200 chicks. Do not try to brood more than 75 chicks per 250-watt heat lamp when the temperature goes below 50° Fahrenheit. If you do, the chicks may trample over each other while trying to get warm. A unit of two heat lamps is always safer than one. If one bulb burns out, the chicks will still have some heat.

HOW SHALL I OPERATE THE BROODER? Make sure the brooder is in good working condition before the chicks arrive. If a brooder is used, operate at 95° Fahrenheit during the first week. Lower the temperature about 5 degrees each week until pullets are put on range. Enlarge the chick guard circle after two days and remove at the end of one week.

Start heat lamps about 18 inches above the floor, and then raise or lower them according to the chicks' comfort. Enlarge the chick guard circle after two days and remove at the end of one week.

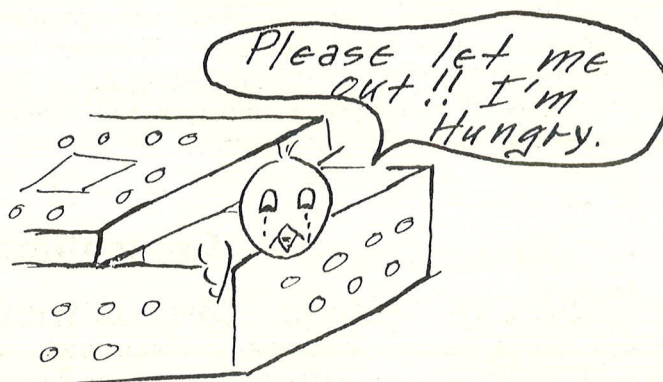
Watch the chicks! They will tell you more about the right temperature than a thermometer. When comfortable, chicks are active, chirrup happily and settle down close to each other but show no tendency to huddle together in tight bunches.

HOW SHALL I START MY CHICKS? Put the chicks under the hover or heat lamps with feed and water as soon as they arrive or as soon as possible. The younger the chicks are started, the sooner they will begin growing. Watch the chicks closely.

Feeding

HOW SHALL I START MY CHICKS ON FEED? For the first few days heap the feed troughs. This will help the chicks find the feed. From then on the troughs should be only half full to prevent feed wastage. In the beginning it may be helpful to scatter some feed on paper plates or on new egg case cup flats; sprinkling chick scratch or oatmeal on top of the mash may help.

It is not necessary to dip every chick's beak into the water, but it does help chicks who are slow to learn. Pro-



vide drinking water with a temperature of about 90° Fahrenheit during the first ten days.

WHAT KIND AND AMOUNT OF FEED SHALL I FEED? Start the chicks on a balanced ration containing 16 to 18 per cent protein. Most feed manufacturers offer a suggested feeding program for their feed. If you use their feed, it is best to follow their suggestions. Do not attempt to mix your own feed unless you are feeding a large number of birds and have the proper equipment for mixing.

At about six weeks of age put the pullets on a grower ration, and have a good supply of green forage or yellow corn, or both. Confine all birds that are to be marketed and feed a fast growing mash ration.

WHAT KIND OF FEEDERS SHALL I USE AND HOW MANY? You will need two sizes of feeders. In the beginning, allow 1 inch of feeding space per chick, and use a chick-size feeder. As the chicks grow you will need a larger feeder (broiler-size) allowing 2 to 3 inches per bird.

HOW SHALL I PROVIDE THE CHICKS WITH WATER? Mason jar waterers, two per 100 chicks, may be used at the start. Then switch to larger containers. Have at least one 3-gallon or larger container available for every 125 chicks. At least two founts are needed for each brood regardless of the number of chicks.

WHEN SHOULD MY PULLETS BE PUT ON RANGE? When the chicks are eight to ten weeks old, it is desirable to put the pullets on range. Suggestions for care of pullets on range are given in another part of this manual.

WHERE SHALL I STORE MY FEED? Store the feed where it is protected from the weather, rats and other animals, and birds. Be sure the storage place is dry, and if possible located near the chicks.

HOW OFTEN SHOULD I FEED AND WATER THE CHICKS? You should not have to feed and water them more than twice a day. If you find it necessary to add feed or water oftener, provide additional feeders and waterers.



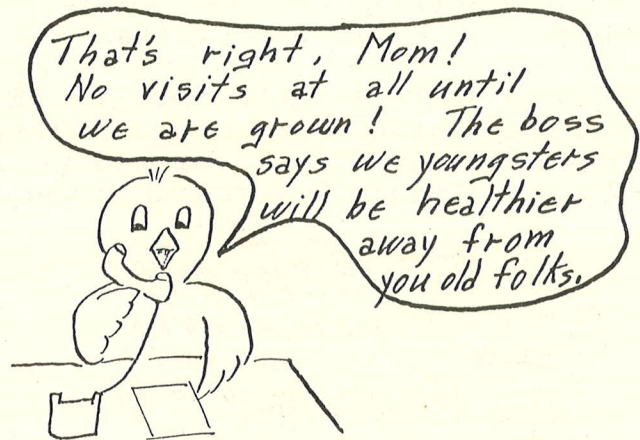
HOW SHALL I TAKE CARE OF THE FEEDERS AND WATERERS? Scrub the waterers thoroughly every day. Put the waterers on wire platforms. Raise the feeders as the chicks grow. This helps to keep litter from being scratched into the feeders and helps reduce feed wastage. Use feeders with revolving reels or grids and with inner projecting lips. When changing to the larger troughs, at four to five weeks, do not remove the smaller troughs for several days. Wait until the chicks seem to be eating well from the large ones.

Controlling Disease

HOW CAN I PREVENT DISEASE WITHIN MY FLOCK? Good management practices, such as those already discussed, are important. Plenty of room, good feed, lots of fresh air, isolation from older chickens, clean ground, good litter management and just plain good housekeeping will help keep chicks healthy.

In addition, follow these rules:

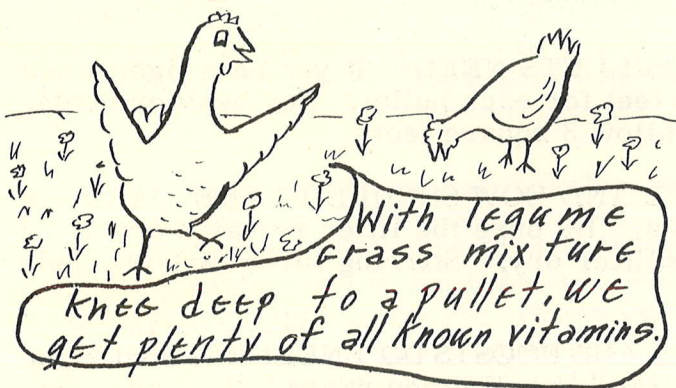
1. Never go from the laying house directly to the brooder house; if possible, wear different shoes or overshoes in the two buildings.
2. Keep visitors out.
3. Promptly burn or deeply bury all dead chickens.
4. Thoroughly clean and disinfect all crates used in moving chickens.
5. Do not bring in chicks from any other flock.
6. Sell all birds exhibited at fairs instead of returning them to the flock.
7. Vaccinate all chicks for diseases known to be in your area.
8. Buy pullorum-free chicks.
9. Keep the litter dry.



HOW CAN I PREVENT CANNIBALISM? Good management and balanced rations will help to prevent cannibalism. Once the trouble has started, the best cure is to debeak the chicks. Your county agent or local hatchery serviceman has equipment for debeaking chicks. If only one or two chicks are pecked try smearing pine tar on them.

WHAT SHOULD I DO IN CASE OF AN OUTBREAK OF DISEASE? Contact the serviceman of your local hatchery. He will help you determine the trouble and how to correct it. Your county agent and local veterinarian will also be able to help you.

Care of Growing Pullets on Range



WHY PUT PULLETS ON RANGE?

Your pullets need lots of room, green feed, sunlight and fresh air if they are to do well. The cheapest and easiest way to provide room, green feed, sunlight and fresh air is to put them on range.

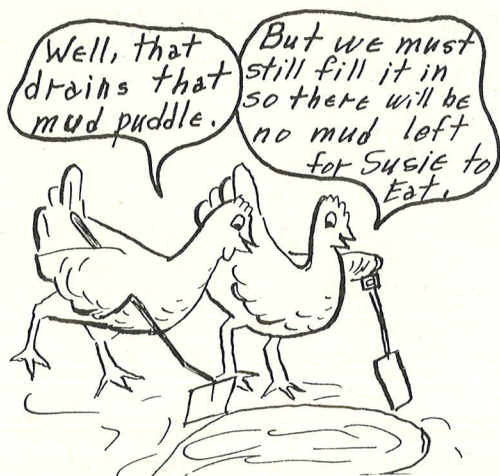
WHAT KIND OF RANGE DO I NEED? The best pullet pasture is a thick sod of young, tender, green growth. The land should be well drained and "clean." Locate the range at least 200 feet from the old hens.

WHAT RANGE SHELTER DO I NEED? If moving the brooder house is not practicable or possible or if you have too many pullets for the present brooder house, a satisfactory range shelter can be made with very little cost. Your county agent has plans for range shelters.

A 10' by 12' brooder house is big enough for 150 pullets from ten weeks to maturity. An 8' by 10' range shelter can handle approximately 125 pullets. You should provide at least 6 inches of roosting space per pullet.

WHEN SHOULD I PUT MY PULLETS ON RANGE? If the weather permits, the desirable age is eight to ten weeks.

WHAT KIND OF WATERERS AND FEEDERS DO I NEED ON THE RANGE? Feeders should be at least broiler-size. They should be on legs or set on blocks so the pullets will stand up to eat. Have the top of the feeder level with the back of the pullets or higher. Covered feeders will prevent rain from wetting the feed.



One hundred pullets will require 6 to 8 gallons of water each day, so use large waterers. Use waterers that are constructed to keep the chickens out of the water. They should be easy to clean and should protect the water from the sun.

Place the waterers on wire-covered platforms. Move the feeders and waterers every few days to prevent excessive trampling of grass and the accumulation of manure. This will help in your disease control program.

Care of Growing Pullets in Confinement

CAN I RAISE PULLETS SUCCESSFULLY IN CONFINEMENT? Yes, provided you raise the pullets under sanitary conditions and have plenty of room, plenty of clean feeders and waterers, adequate rations and enough heat and ventilation. In general the housing cost and the labor and feed required are greater than if the pullets are raised on range. Also, cannibalism is a greater problem with pullets raised in confinement than with those raised on range.

HOW LONG WILL MY PULLETS REQUIRE HEAT? If reared during extremely cold weather, pullets may require heat until they are eight to twelve weeks of age. In the warm part of the year heat will not be necessary.

HOW MUCH FLOOR SPACE WILL MY PULLETS NEED? If you have lightweight birds such as Leghorns, allow 2 1/2 square feet for each pullet. For heavier birds, such as White Rocks and New Hampshires, allow 3 square feet.

WHAT KIND OF LITTER SHOULD I USE AND HOW SHOULD I TAKE CARE OF IT? Use litter the same as for baby chicks. Be sure the litter remains dry at all times. Good ventilation will aid in keeping litter dry. Stirring litter will also help to keep it dry.

WHAT KIND OF FEEDERS, WATERERS AND ROOSTS DO I NEED? Provide the same amount and kind of equipment as when raising pullets on range.

WHAT OTHER FACTORS SHOULD I CONSIDER? Have plenty of cross ventilation during hot summer days; watch for cannibalism; kill and dispose of unthrifty chicks.

Care of Cockerels for Breeding

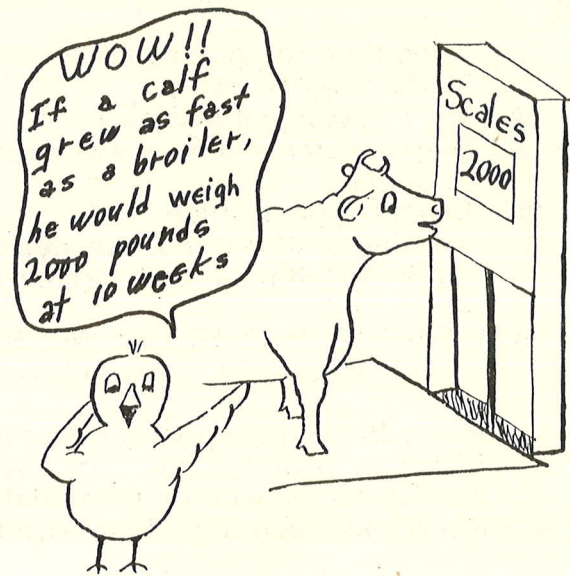
HOW SHOULD I CARE FOR COCKERELS THAT ARE TO BE USED IN MY HATCHING SUPPLY FLOCK? Cockerels saved for breeding purposes can be raised successfully with pullets if not more than 15 are included per 100 pullets.

HOW SHOULD I SELECT COCKERELS FOR MY BREEDING FLOCK? Select 12 cockerels per 100 pullets at the age of about six weeks. Be sure to look for the healthy cockerels most advanced in feathering, with plump breasts and stout, well colored shanks. Make final selection and cull undesirable males at the time your pullets begin laying. Your local hatchery serviceman will help you make this selection.

Care of Market Poultry

HOW SHOULD I CARE FOR MY MARKET POULTRY? When raising chicks to market as meat, follow all recommendations given for brooding. At about six weeks of age separate the market birds from the pullets. Confine and feed them for maximum growth.

WHAT KIND OF FEED SHOULD I USE TO OBTAIN MAXIMUM GROWTH? If market birds are fed alone you may use a ration containing about 24 per cent protein for the first six weeks. Then use an 18 per cent protein feed as a finisher. Broilers that are doing well will not eat more than 2-3/4 pounds of feed per pound of live weight during their entire growing period.



HOW MUCH FLOOR SPACE SHOULD I ALLOW? Friers, broilers and roasters require 1 square foot per bird. For capons and caponettes allow 2 or 3 square feet per bird.

WHEN SHOULD I MARKET MY BIRDS? It is usually best to sell broilers of heavy breeds when they weigh 3 to 2-1/2 pounds. If you have light breeds it will pay to dispose of them as broilers at 2-1/2 pounds. Roasters are marketed when they weigh 4 to 6 pounds. Capons and caponettes should weigh 7 to 10 pounds when marketed.

Your hatcheryman or feed dealer will be glad to help you find a buyer. If you wish to sell the broilers yourself, talk to several buyers, if possible, two to three weeks before your birds are ready. Find out the weight they prefer, the day of the week they buy, and the prospective price. Be able to tell your buyer your birds' weight, age and how well they are feathered.

Selecting and Preparing Birds for Show

HOW CAN I MAKE A GOOD EXHIBIT WITH MY POULTRY? If you expect to make a creditable exhibit in poultry shows, you must prepare your birds ahead of time. Besides properly feeding and caring for the birds, you need to properly select and groom them.

HOW SHOULD I SELECT MY SHOW ENTRIES? Select your exhibit birds early, at least two weeks before the opening of the show. If you desire to show one bird, look the flock over and select several. If you want to exhibit a trio, choose seven or eight of the best pullets and two or three cockerels. Put these birds in a clean and comfortable small pen or show coop. Watch them carefully for two or three days for type and showing qualities. Then make your final selection, choosing birds that have:

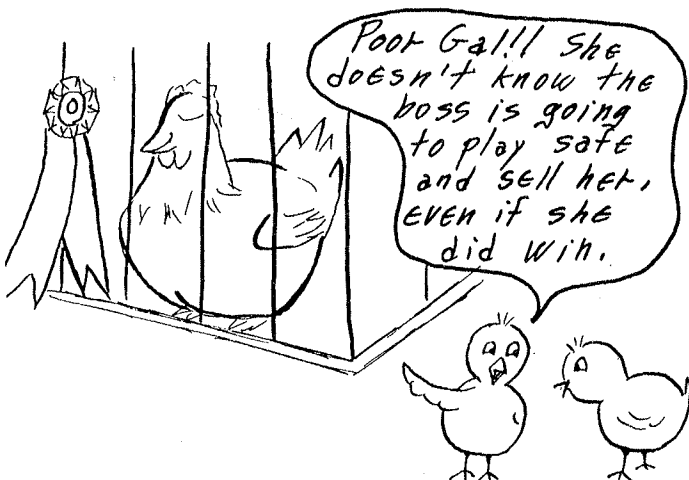
1. Type true to your breed
2. Uniformity in color
3. Well developed bodies
4. Well developed but not worn and ragged feathers
5. Healthy appearance
6. No disqualifications, as described in the book "Standard of Perfection."

HOW SHOULD I CARE FOR MY BIRDS BEFORE THE SHOW? Follow these four steps when taking care of birds before the show:

1. Place bird in coop with clean straw, shavings or a similar kind of litter.
2. Place coop in a clean, dry, well ventilated house that is free of drafts.
3. Handle birds once or twice daily.
4. Keep good feed and clean water before birds at all times.

WHAT IS THE BEST WAY TO CLEAN MY CHICKENS FOR A SHOW? Birds will clean themselves surprisingly well if placed on clean litter for several weeks. If they are still dirty, you may need to wash them. Birds with soiled feathers should be washed at least one day before taken to the show. If you are a beginner, you may need to wash your birds two days in advance. You will then have time to wash the birds again in case you still have a dirty bird or if you left too much soap in the feathers.

HOW SHOULD I WASH MY BIRDS? A suggested procedure for washing birds is as follows:



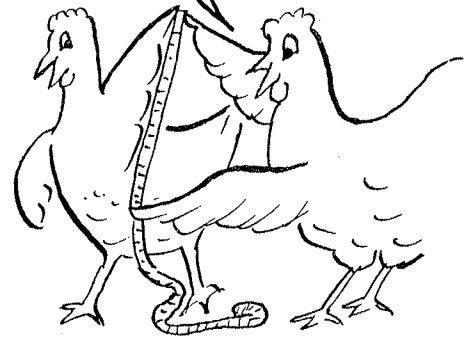
1. Have temperature in the room between 70° and 80° Fahrenheit and avoid drafts.
2. Use three tubs of lukewarm water.

Tub I -- Three-fourths full. Add good mild soap flakes for suds. Place bird in tub. Sponge bird clean, washing down on the feathers (never wash up). Use brush to clean between toes. Press water from feathers when the bird is clean.

Tub II -- Three-fourths full. Put bird in water and rinse soap from feathers. Leave bird in water long enough for feathers to float and take shape.

Tub III -- Three-fourths full. Put bird in water. Remove remainder of soap from feathers. Be sure no soap is left in feathers, or they will have a stringy appearance.

You surely have the measurements for a blue ribbon winner, Susie.



3. Remove bird from tub III and press water from bird's body and feathers. This can be done by wrapping a turkish towel loosely around the bird and blotting off the excess water. Do not rub. Apply mineral oil or vaseline lightly to comb, shanks and toes and rub gently.

4. Place bird in a clean coop with wire bottom, or a coop with straw or clean paper. Place only one bird in a coop. Have room free of drafts with a temperature of 70° to 80° Fahrenheit. If temperature is too high, the feathers will curl. Leave the bird in the coop until thoroughly dry.

Suggestions for Demonstrations

WHAT SHALL I DEMONSTRATE? You can demonstrate many different practices pertaining to poultry and poultry production. Be sure to select a topic that you are willing to learn a great deal about. Listed below are some suggested demonstrations. Your county agent will be able to give you the information you will need to know about each subject.

- Culling the Laying Flock.
- Caponizing Cockerels.
- Preparing Birds for Show or Exhibit.
- Treating for Lice
- Preparing Brooder House for Chicks.
- Treating Poultry for Mites.
- Deworming Birds.
- Killing and Dressing Fowl.
- Constructing a Summer Range Shelter.
- Caring for Waterers and Feeders.
- Catching and Shipping Birds.

HOW SHALL I GIVE A DEMONSTRATION? The answer to your question can be found in Extension Circular 0-05-2, "4-H Demonstrations." Ask your county agent for a copy.

EXPLANATION OF TERMS

- Bird -- A term that is frequently used when talking about an individual fowl.
- Breed -- An established group of fowls, related by breeding, that have a distinctive body shape and the same general weight. For example, Leghorns.
- Broiler -- A young chicken weighing not more than 3 1/2 pounds, that is sufficiently soft-meated to be cooked tender by broiling.
- Cannibalism -- A chicken picking or devouring its own kind.
- Capon -- A male chicken that has been castrated by surgical methods.
- Caponette -- A male chicken that has been castrated by the use of hormones, such as stilbestrol.
- Class -- The term class is used to designate groups of standard breeds that have been developed in certain regions. For example, New Hampshire chickens were developed in America and are classified as American. Other commonly known classes of chickens are English, Mediterranean and Asiatic.
- Clean ground -- Ground that has not had poultry or poultry manure on it for at least 18 months.
- Cock -- A male chicken that is one year old or older.
- Cockerel -- A male chicken that is less than one year old.
- Debeak -- Cutting off of one-half to two-thirds of the upper part of the beak.
- Fowl -- A term commonly used for chickens, turkeys, ducks and geese.
- Fryer -- A young chicken weighing over 2 1/2 pounds but not more than 3 1/2 pounds, that is sufficiently soft-meated to be cooked tender by frying.
- Hen -- A female chicken or turkey that is one year old or older.
- Hybrid -- The result of the cross between two breeds or varieties.
- Pullet -- A female chicken less than one year old.
- Range -- Pasture.
- Roaster -- A young chicken weighing over 3 1/2 pounds that is sufficiently soft-meated to be cooked tender by roasting. Capons and caponettes are roasters.
- Standard of Perfection -- A book published by the American Poultry Association Incorporated, Atlanta, Georgia. The book gives the requirements that each recognized breed must meet.
- Variety -- A subdivision of a breed. It is distinguished either by color, color pattern, or comb. For example, rose-comb dark brown Leghorns, single-comb white Leghorns, and single-comb buff Leghorns.